

Perceptions of effectiveness and preferences for design and position of signage on Victorian beaches for the management of Hooded Plovers *Thinornis rubricollis*

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Abstract

Threatened species signage is frequently used to help protect species by limiting human occurrence or altering damaging human behaviour, yet is rarely developed using a scientific approach that involves collecting data from the key target audience in regard to their preferences for signs and placement of signs. We surveyed members of the beach-going public ($n = 684$) to document their preferences for desirable features and positioning of signage to protect threatened beach-nesting birds. The results suggest a preference for information relating to education and persuasion over details of regulation. However, preferences differed between recreational user groups, suggesting that target audiences should be identified specifically and prioritised. We also describe clear preferences between four candidate signs, which will facilitate a more informed choice of signage for beach-nesting bird management. (*The Victorian Naturalist* 130 (2) 2013, 75–80)

Key words: signage, Hooded Plover, education, recreationists, interpretation

Introduction

Signage is a key technique for managing human behaviour in natural environments, especially in places where human usage is high and behavioural change is required for successful co-existence between biodiversity and people. In southern Australia, signage is used extensively to protect eggs and young of the beach-nesting Hooded Plover *Thinornis rubricollis* from disturbance and crushing, and to educate beachgoers (Dowling and Weston 1999; Ormsby and Forsys 2010; Weston *et al.* 2011). Providing effective signage is difficult on beaches with dynamic substrates, and multidirectional human access to sensitive areas. The design and effectiveness of wildlife management signs in recreational areas varies considerably and is rarely the product of theory or research (Ballantyne and Hughes 2006). The effectiveness of most wildlife management signs is poorly known, with the exception of signage regarding animal/vehicle collisions or the feeding of wildlife (e.g. Ballantyne and Hughes 2006; Krisp and Durot 2007; Pojar *et al.* 1975). As part of a broader survey of attitudes to Hooded Plover management, we examined some preferences for sig-

nage amongst the general public, the target audience of the signs. We also examined features which the general public considered would make signs most effective, in terms of assisting Hooded Plovers. We describe those preferences and views in this preliminary study.

Methods

Between September 2009 and April 2010, we surveyed 684 people (18+ years old) who indicated they had access to, and therefore were potential users of, Victorian beaches, by: 1) distributing questionnaires to people present on Hooded Plover beaches (77 responses, 26.6% return rate); 2) letterbox drops to households adjacent to Hooded Plover beaches (25 responses, 25.0% return rate); and 3) advertising an online questionnaire to 'beach users' (Survey Monkey; 579 responses). See <http://www.birdlife.org.au/projects/beach-nesting-birds/research> for the questionnaire, which had 20 closed questions including five, five-point, scaled questions involving 77 items. The survey investigated a broad range of attitudes towards plover management, so a logical subset of

questions was analysed to examine respondent views of signage (Table 1). Reply paid envelopes were provided to people surveyed using methods 1 and 2 above. Data were collected by BirdLife Australia and Gordon TAFE. Preferences for sign placement indicated by respondents were compared with the position of actual signs on the Bellarine Peninsula, as noted during comprehensive beach surveys for breeding plovers.

Respondents were asked to indicate where signs should be placed and how likely they would be to read a sign. Scaled responses to questions regarding the perceived effectiveness of eight features of signs were analysed using Factor Analysis (Principle Components Analysis with varimax rotation; SPSS v. 11.5, SPSS Inc., Chicago, Illinois); this identified groups of questions (items) being answered in similar ways, according to an underlying 'theme'. All F tests refer to repeated measures ANO-

VAs, which were conducted on factor scores, and means \pm one standard error are presented throughout. We wished to compare responses between prominent beach user groups. Frequency of beach use was established through a series of questions asking how often respondents use beaches, whether they were dog walkers, and their level of awareness of Hooded Plovers. Finally, respondents ranked aspects of four signs, deemed to be candidates for deployment (Fig. 1).

Results

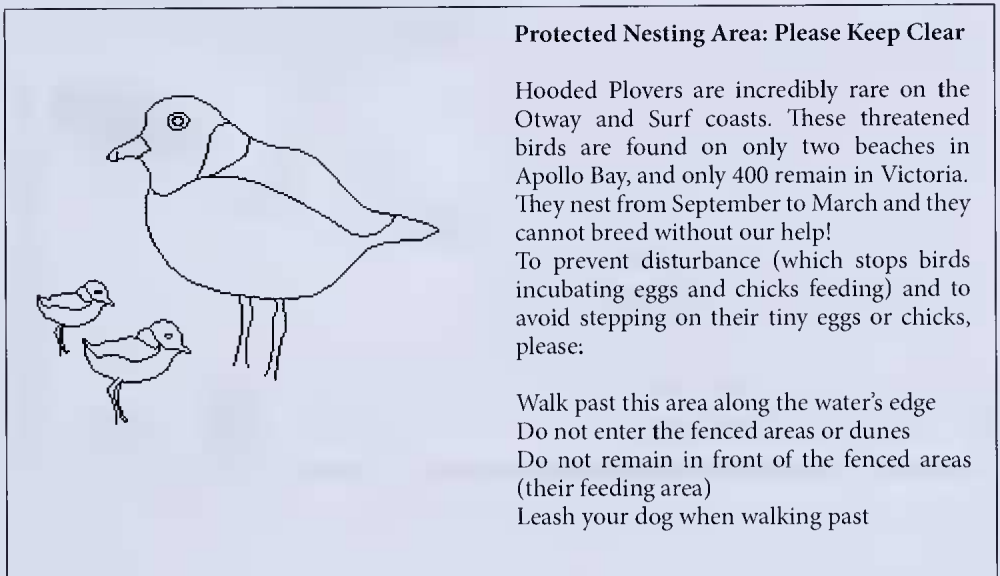
Respondents were 'likely' to read a sign that was positioned on or near the beach (4.39 \pm 0.03, where 1 and 5 were 'definitely not' and 'definitely' respectively; $n = 516$). When asked where signs should be placed to be highly 'noticeable' (respondents could provide multiple responses; bracketed figures refer to 65 actual Hooded Plover signs along the Bellarine Peninsula), 78.4% (40.0%) of 524 respondents

Table 1. Survey questions analysed here (basic demographic questions are excluded).

Question	Items / options	Response type
Where do you think signs should be placed to make them most noticeable?	1. In the car park 2. At beginning of the access path 3. At the end of the access path 4. In the dunes 5. On the lower beach 6. On the upper beach	Multiple items ticked
If you noticed a sign on the beach, how likely would it be for you to stop to read it?	N/A	Five point scale
Of the four signs you have been shown, please rank them in order of preference.	N/A	Four point scale
What do you think are the most effective features of Hooded Plover signs?	1. Wording that takes an authoritative approach. 2. Indications of penalties or fines. 3. A clear definition of the problem. 4. A clear definition of how I should behave. 5. Appealing to people's feelings/emotions. 6. Personalising the bird so that I can relate more easily to its plight. 7. Colourful pictures/photographs. 8. Identification of nearby alternative locations for recreation where there are no Hooded Plovers present.	Five point scale



Sign A



Sign B

Fig. 1. The signs which were rated by respondents.

(No image)

Endangered Shorebird Species Nesting Area

Do not enter or disturb

Penalties Apply.

The rare and endangered Hooded Plover is nesting in this area. There are less than 400 located along Victoria's coastline.

Dogs must be leashed at all times.

For further information contact

BirdLife Australia

Sign C



**ENDANGERED BIRDS
NESTING ON BEACH!!**

Look out for signs on the beach and keep clear of fenced areas.

Please if you wish to walk your dog off its lead, use an alternative stretch of beach. Nearby locations include:

- * A (Carpark 600m east)
- * B (Carpark 700m west)

Department of Sustainability and Environment
Birds Australia
Australian Government

Sign D

Fig. 1. (cont.) The signs which were rated by respondents.

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Index to

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ANHM Trust Fund Donations 21

Authors

Ambrose G 187 (book review)
Bayes E, Douglas F, Whitfield J, Van Praagh
BD, Field RP, Yen AL and New TR 114
Bilney RJ 138
Braby MF 86
Brown G, Tolsma A and McNabb E 77
Cardilini AP, Ekanayake KB and Weston MA
22
Clemann N 61 (book review)
Clemann N and Gillespie G 120 (letter)
Cohen A, Kirkman H and Houridis H 97
Douglas F, Whitfield J, Van Praagh BD, Field
RP, Yen AL, Bayes E and New TR 114
Douglas J, Hunt T and Trueman W 152
Editors, *The Victorian Naturalist* 2, 34, 66,
126, 158, 190
Ekanayake KB, Cardilini AP and Weston MA
22
Fagg P 147
Field RP, Bayes E, Douglas F, Whitfield J, Van
Praagh BD, Yen AL and New TR 114
Fisher PMJ 183
Floyed A and Gibson M 203
Garden D 62 (book review)
Gibson M and Floyed A 203
Gillespie G and Clemann N 120 (letter)
Green K 181
Grey E and Patterson G 119
Harley D 175
Homan P 128, 192
Homan P and Schultz N 36
Houridis H, Cohen A and Kirkman H 97
Hubregtse J and Hubregtse V 160
Hubregtse V and Hubregtse J 160
Hunt T, Douglas J and Trueman W 152
Hutchinson J and O'Brien M 29 (book
review)
Kirkman H, Cohen A and Houridis H 97
Mansergh I 24
McNabb E, Brown G and Tolsma A 77
Meagher D 54
Moore GM 167
Morgan JW and O'Brien TP 4
Morton A 122 (book review)
Mueck S 180
New T 109, 114, 215 (book review)
New T, Van Praagh BD and Yen AL 68

New TR, Bayes E, Douglas F, Whitfield J, Van
Praagh BD, Field RP and Yen AL 114
O'Brien M and Hutchinson J 29 (book
review)
O'Brien TP and Morgan JW 4
Patterson G and Grey E 119
Presland G 20, 27 (book review)
Ritchie A 214 (book review)
Schultz N and Homan P 36
Tolsma A, Brown G and McNabb E 77
Trueman W, Douglas J and Hunt T 152
Turner GS 46
Van Praagh BD, Field RP, Bayes E, Douglas F,
Whitfield J, Yen AL and New TR 114
Van Praagh BD, New T and Yen AL 68
Wallis R 31 (book review)
Walsh N 10
Weston MA, Cardilini AP and Ekanayake KB
22
Whinray J 144
Whitfield J, Bayes E, Douglas F, Van Praagh
BD, Field RP, Yen AL and New TR 114
Yen AL, Bayes E, Douglas F, Whitfield J, Van
Praagh BD, Field RP and New TR 114
Yen AL, Van Praagh BD and New T 68

Amphibians

Mixophyes balbus call, a response 120
Southern barred Frog call, a response 120

Birds

Corvus mellori, predator on shorebirds 22
Little Ravens predator on shorebirds 22
Sooty Owl, held responsible for subfossil
deposits, Buchan 138
Tyto tenebricosa, held responsible for subfossil
deposits, Buchan 138

Book Reviews

A Flutter of Butterflies M Braby and P Olsen
(G Ambrose) 187
*Burke & Wills: the scientific legacy of the
Victorian Exploring Expedition* EB Joyce and
DA McCann (eds.) (A Morton) 122
*Fifty Animals that changed the course of
History* E Chaline (R Wallis) 31
Frozen in Time: prehistoric life in Antarctica
JD Stilwell and JA Long (A Ritchie) 214
*Killers in Eden: the story of a rare partnership
between men and killer whales* D Clode
(D Garden) 62
Life in a gall: The biology of insects that live in